In re Patent Application of
BARDWELL
Serial No. 10/081,870
Filed: FEBRUARY 22, 2002
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In the Claims:

This listing of claims replaces all prior versions
and listing of claims in the application.

1. (Currently amended) A method for storing
biometric information on a token comprising a magnetic storage
medium, the method comprising:

capturing a biometric image and generating therefrom
digital pixel data for an array of image pixels;

selecting a plurality of non-contiguous sets of
image pixels from the array of image pixels, each non-
contiguous set of image pixels comprising a plurality of
consecutive and colinear image pixels;

processing respective sets of digital pixel data for
the selected non-contiguous sets of image pixels ~~to produce
biometric data~~; and

storing the ~~biometric data~~ processed sets of digital
pixel data for the selected non-contiguous sets of image
pixels on the magnetic storage medium of the token.

2.   (Previously presented) The method according to
Claim 1, wherein capturing the biometric image comprises using
a biometric sensor having a sensing area; and wherein
selecting the plurality of non-contiguous sets of image pixels
comprises selecting a reference set of image pixels based upon
a predetermined location on the sensing area, and selecting at
least one other set of image pixels a predetermined distance
from the predetermined location.

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        3.   (Original) The method according to Claim 2,
wherein the location of the reference set of image pixels is
also stored on the magnetic storage medium.

        4.   (Original) The method according to Claim 1,
wherein capturing the biometric image comprises capturing
multiple biometric images until a preferred biometric image is
captured based upon an image quality threshold.

        5.   (Canceled).

        6.   (Original) The method according to Claim 1,
wherein the biometric information is based upon a fingerprint;
and wherein capturing the biometric image comprises capturing
the biometric image using a fingerprint sensor.

        7.   (Currently amended) The method according to
Claim 1, wherein the token comprises a card corresponding to
the ISO/IEC 7810 standard and the magnetic storage medium
comprises a magnetic stripe having three tracks in accordance
with the ISO/IEC 7811 standard; and wherein storing the
<u>processed sets of digital pixel data for the selected non-
contiguous sets of image pixels</u> ~~biometric data~~ comprises
storing the <u>processed sets of digital pixel data for the
selected non-contiguous sets of image pixels</u> ~~biometric data~~ on
the third track.

        8.   (Original) The method according to Claim 1,
wherein the token comprises a generally rectangular substrate.

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     9.   (Original) The method according to Claim 1,
wherein the token comprises at least one of an access card,
credit card, debit card, frequent flyer card, driver's license
card, identification card and smart card.

     10. (Currently amended) A method of regulating the
use of a token, the token comprising a magnetic storage medium
having <u>processed selected non-contiguous sets of image pixels</u>
<u>from an array of image pixels of an enrollment biometric image</u>
~~biometric data~~ of an authorized token user stored thereon, ~~the~~
~~biometric data comprising selected non-contiguous sets of~~
~~image pixels from an array of image pixels of an enrollment~~
~~biometric image,~~ each non-contiguous set of image pixels
comprising a plurality of consecutive and colinear image
pixels, the method comprising:
     capturing a verification biometric image and
generating digital pixel data for an array of image pixels
from the verification biometric image;
     decoding the ~~biometric data~~ <u>processed selected non-</u>
<u>contiguous sets of image pixels from the array of image pixels</u>
<u>of the enrollment biometric image</u> stored on the magnetic
storage medium of the token; and
     comparing the non-contiguous sets of image pixels
from the decoded biometric data with the digital pixel data
for the array of image pixels from the verification biometric
image to determine if the token holder is the authorized token
user.

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11.   (Previously presented) The method according to
Claim 10, wherein capturing the verification biometric image
comprises using a biometric sensor having a sensing area; and
wherein comparing the non-contiguous sets of image pixels
comprises a bit by bit comparison of one of the non-contiguous
sets of image pixels from the magnetic storage medium with the
array of image pixels from the verification biometric image
beginning at a first scanline and continuing to a last
scanline until a match is found.

12.   (Canceled).

13.   (Original) The method according to Claim 10,
wherein the biometric information is based upon a fingerprint;
and wherein capturing the biometric image comprises capturing
the biometric image using a fingerprint sensor.

14.   (Currently amended) The method according to
Claim 10, wherein the magnetic storage medium comprises a
magnetic stripe having three tracks in accordance with the
ISO/IEC 7810 and 7811 standards; and wherein the ~~biometric
data~~ processed selected non-contiguous sets of image pixels
from the array of image pixels is stored on the third track.

15.   (Currently amended) A method of regulating the
use of a token, the token comprising at least one of an access
card, credit card, debit card, identification card and smart
card, and including at least a magnetic storage medium
thereon, the method comprising:

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enrolling an authorized token user by

capturing a first biometric image and
generating therefrom first digital pixel data for a
first array of image pixels,

selecting a first plurality of non-contiguous
sets of image pixels from the first array of image
pixels, each non-contiguous set of image pixels
comprising a plurality of consecutive and colinear
image pixels,

processing respective sets of digital pixel
data for the first plurality of selected non-
contiguous sets of image pixels ~~to produce~~
~~enrollment biometric data~~, and

storing the <u>processed sets of digital pixel
data for the first plurality of selected non-
contiguous sets of image pixels</u> ~~enrollment biometric
data~~ on the magnetic storage medium of the token;
and

verifying an identity of a token holder presenting
the token by

capturing a second biometric image and
generating therefrom second digital pixel
data for a second array of image pixels, and

comparing the second digital pixel data
with the first plurality of <u>processed</u> selected non-
contiguous sets of image pixels ~~of the enrollment~~
~~biometric data~~ stored on the magnetic storage medium
of the token to determine if the token holder is the
authorized token user.

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     16.   (Previously presented) The method according to Claim 15, wherein capturing the biometric images comprises using a biometric sensor having a sensing area; and wherein selecting the plurality of non-contiguous sets of image pixels comprises selecting a reference set of image pixels based upon a predetermined location on the sensing area, and selecting at least one other set of image pixels a predetermined distance from the predetermined location.

     17.   (Original) The method according to Claim 15, wherein capturing the biometric images comprises capturing multiple biometric images until a preferred biometric image is captured based upon an image quality threshold.

     18.   (Canceled).

     19.   (Original) The method according to Claim 15, wherein the biometric information is based upon a fingerprint; and wherein capturing the biometric images comprises capturing the biometric images using a fingerprint sensor.

     20.   (Currently amended) The method according to Claim 15, wherein the magnetic storage medium comprises a magnetic stripe having three tracks in accordance with the ISO/IEC 7810 and 7811 standards; and wherein storing the <u>processed sets of digital pixel data for the first plurality of selected non-contiguous sets of image pixels</u> ~~enrollment biometric data~~ comprises storing the <u>processed sets of digital</u>

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pixel data for the first plurality of selected non-contiguous

sets of image pixels ~~biometric data~~ on the third track.

21. (Currently amended) A system for regulating the
use of a token, the token comprising at least one of an access
card, credit card, debit card, frequent flyer card, driver's
license card, identification card and smart card, and
including at least a magnetic storage medium thereon, the
system comprising:

an authorized token user enrollment unit including

a first biometric sensor device for
capturing a first biometric image and generating
therefrom first digital pixel data for a first
array of image pixels,

a first image processor for selecting a
first plurality of non-contiguous sets of image
pixels from the first array of image pixels, and
processing respective sets of digital pixel data for
the first plurality of selected non-contiguous sets
of image pixels to produce processed sets of digital
pixel data for the first plurality of selected non-
contiguous sets of image pixels ~~enrollment biometric
data~~, each non-contiguous set of image pixels
comprising a plurality of consecutive and colinear
image pixels, and

a first magnetic storage medium reader/writer
for writing the processed sets of digital pixel data
for the first plurality of selected non-contiguous

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sets of image pixels ~~enrollment biometric data~~ on
the magnetic storage medium of the token;

at least one token holder verification unit for
verifying the identity of a token holder presenting the token,
and comprising

a second biometric sensor device for
capturing a second biometric image and generating
therefrom second digital pixel data for a second
array of image pixels,

a second magnetic storage medium reader for
reading the <u>processed sets of digital pixel data for</u>
<u>the first plurality of selected non-contiguous sets</u>
<u>of image pixels</u> ~~enrollment biometric data~~ from the
magnetic storage medium of the token, and

a comparator for comparing the second digital
pixel data with the <u>processed</u> first plurality of
selected non-contiguous sets of image pixels ~~of the~~
~~enrollment biometric data~~ stored on the magnetic
storage medium of the token to determine if the
token holder is the authorized token user.

22.   (Previously presented) The system according to
Claim 21, wherein the biometric sensor device comprises a
biometric sensor having a sensing area; and wherein the
plurality of non-contiguous sets of image pixels comprises a
reference set of image pixels based upon a predetermined
location on the sensing area, and at least one other set of
image pixels a predetermined distance from the predetermined
location.

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   23. (Original) The system according to Claim 21, wherein the biometric sensor devices each comprise an image quality determination unit for determining the quality of captured biometric images.

   24. (Canceled).

   25. (Original) The system according to Claim 21, wherein the biometric information is based upon a fingerprint; and wherein the biometric sensor devices each comprise a fingerprint sensor.

   26. (Original) The system according to Claim 25, wherein the biometric sensor device further comprises a finger slide adjacent the fingerprint sensor.

   27. (Original) The system according to Claim 26, wherein the finger slide further comprises finger guides and a finger stop.

   28. (Currently amended) The system according to Claim 21, wherein the magnetic storage medium comprises a magnetic stripe having three tracks in accordance with the ISO/IEC 7810 and 7811 standards; and wherein the magnetic storage medium reader/writer writes the <u>processed sets of digital pixel data for the first plurality of selected non-contiguous sets of image pixels</u> ~~enrollment biometric data~~ on the third track.

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.29. (Currently amended) A device for storing biometric information on a token comprising a magnetic storage medium, the device comprising:

a biometric sensor device for capturing a biometric image and generating therefrom digital pixel data for an array of image pixels;

an image processor for selecting a plurality of non-contiguous sets of image pixels from the array of image pixels, and processing respective sets of digital pixel data for the plurality of selected non-contiguous sets of image pixels to produce <u>processed sets of digital pixel data for the first plurality of selected non-contiguous sets of image pixels</u> ~~enrollment biometric data~~, each non-contiguous set of image pixels comprising a plurality of consecutive and colinear image pixels; and

a magnetic storage medium reader/writer for writing the <u>processed sets of digital pixel data for the first plurality of selected non-contiguous sets of image pixels</u> ~~enrollment biometric data~~ on the magnetic storage medium of the token.

30. (Previously presented) The device according to Claim 29, wherein the biometric sensor device comprises a biometric sensor having a sensing area; and wherein the plurality of non-contiguous sets of image pixels comprise a reference set of image pixels based upon a predetermined location on the sensing area, and at least one other set of image pixels a predetermined distance from the predetermined location.

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31.   (Canceled).

32.   (Original) The device according to Claim 29,
wherein the biometric information is based upon a fingerprint;
and wherein the biometric sensor device comprises a
fingerprint sensor.

33.   (Original) The device according to Claim 32,
wherein the biometric sensor device further comprises a finger
slide adjacent the fingerprint sensor.

34.   (Original) The device according to Claim 33,
wherein the finger slide comprises finger guides and a finger
stop.

35.   (Currently amended) The device according to
Claim 29, wherein the magnetic storage medium comprises a
magnetic stripe having three tracks in accordance with the
ISO/IEC 7810 and 7811 standards; and wherein the magnetic
storage medium reader/writer writes the <u>processed sets of
digital pixel data for the first plurality of selected non-
contiguous sets of image pixels</u> ~~enrollment biometric data~~ on
the third track.

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